

Slopes and Graphs

slope	$(y_2 - y_1) / (x_2 - x_1)$
equation of a line	$y = mx + b$
midpoint	$(x_2 + x_1 / 2, y_2 + y_1 / 2)$
distance between two points	$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Arcs

length of an arc	$(2\pi r)(\text{degree measure of arc} / 360)$
area of an arc sector	$(\pi r^2)(\text{degree measure of arc} / 360)$

Trigonometry

$\sin(x)$	opposite/hypotenuse
$\cos(x)$	adjacent/hypotenuse
$\tan(x)$	opposite/adjacent

to find the length of a side, simply substitute the other side and the angle into the above equations and solve

Factoring

simple (a=1)	given $ax^2 + bx + c$, find two numbers that multiply to c and add to b
completing the square (a does not equal 1)	given $ax^2 + bx + c$, find two numbers that multiply to ac and add to b; replace the middle term with the two numbers in terms of x; split into two groups; factor out gcf; combine those inside parentheses and those outside into two groups (see below)
quadratic formula	$x = (-b \pm \sqrt{b^2 - 4ac}) / 2a$

Completing the Square

$2x^2 - 3x + 2 = 0$ $2(-2) = -4$
 $2x^2 - 4x + 1x - 2 = 0$
 $2(x - 2) + 1(x - 2) - 4 = 0$
 $(x - 2)(2x + 1) = 0$

